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No. Pages: 23

Instrument: EXHIBIT(S)

Control #: 202402161642
Index #: E2024003035

Date: 02/16/2024

Time: 6:19:49 PM

Return To:
JENNIFER MORGAN LEVY
24 N. Main Street
Suite 2
Fairport, NY 14450

Dias, Liyanagamage Ranganath Prabashwara

University of Rochester

Total Fees Paid: $0.00

Employee:

State of New York

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JAMIE ROMEO

MONROE COUNTY CLERK

EXHIBIT F

YSCEF DOC. NO. 11 RECEIVED NYSCEF: 02/14/202

Re: [EXT] Re: Post-publication peer review process on Nature 615, 244–250 (2023)

Dewhurst, Stephen <Stephen_Dewhurst@URMC.Rochester.edu>
Tue 9/5/2023 4:24 PM
To:McBride, Raymond <rmcbrid5@UR.Rochester.edu>
Cc:Leslie Thornton <Leslie.Thornton@ropesgray.com>;Dewhurst, Stephen <Stephen_Dewhurst@URMC.Rochester.edu>

4 attachments (18 MB)
EDF_15_Fits.xlsx; Response to Nature post publication referee comments.pdf; EDF_15_Fits.xlsx; Response to Nature post publication referee comments.pdf;

Hi Ray

Thanks for letting us know

Best regards

Steve

****

Steve Dewhurst
He/him/his
Vice President for Research
Vice Dean for Research, School of Medicine & Dentistry
University of Rochester
Cell: (585) 797 7840 stephen_dewhurst@urmc.rochester.edu

> On Sep 5, 2023, at 4:19 PM, McBride, Raymond <rmcbrid5@ur.rochester.edu> wrote:
>
> Hi Steve and Leslie,
>
> I Just wanted to let you know that Ranga sent a response to Tobias today.
>
> Ray
>
> ---
>
> **From:** Ranga Dias <rangadiaz@gmail.com>
> **Sent:** Tuesday, September 5, 2023 2:55 PM
> **To:** Tobias Roedel <tobias.roedel@nature.com>
> **Cc:** ASHKAN SALAMAT <ash@unearthlymaterials.com>; keith@unearthlymaterials.com <keith@unearthlymaterials.com>; sachithd83@gmail.com <sachithd83@gmail.com>; Munasinghe, Sasanka <smunasin@UR.Rochester.edu>; Khalvashi-Sutter, Nugzari <nkhalvas@u.Rochester.edu>; Durkee, Dylan <ddurkee@UR.Rochester.edu>; Wadhurawa Mudiy, Hiranya <hwadhura@ur.rochester.edu>; McBride, Raymond <rmcbrid5@UR.Rochester.edu>; Snider, Elliot <esnider3@ur.rochester.edu>; Dasenbrock-gamm, Nathan <ndasenbr@ur.rochester.edu>; Karl Ziemelis <Karl.Ziemelis@nature.com>; Federico Levi <Federico.Levi@nature.com>; Robert Heist

<rconnorh@rconnorlaw.com>
Subject: [EXT] Re: Post-publication peer review process on Nature 615, 244–250 (2023)

Dear Tobias,

Please find attached the response to the referee's comments, data files from the computer, and an Excel file showing the derived values using the equations we provided for EDF 15.

I remain committed to upholding a transparent review process that eliminates the veil of anonymity and promotes referee openness. I kindly request confirmation regarding the willingness of both anonymous authors and referees to engage in an open and transparent dialogue.

Your consideration in this matter is greatly appreciated.

Regards,
Ranga

10kbar.csv

16kbar.csv

20kbar.csv

On Thu, Aug 31, 2023 at 2:50 AM Tobias Roedel <tobias.roedel@nature.com> wrote:

> Dear Ranga (and co-authors),
>
> I hope that you are doing well.
>
> As you know (see email below), we initiated a post-publication peer review process on your paper *Nature* **615**, 244–250 (2023) 'Evidence of near-ambient superconductivity in a N-doped lutetium hydride'. I am now contacting you with its output.
>
> To summarize the process so far: members of the scientific community that wished to remain anonymous contacted us with a set of comments and requests aimed at better understanding the analysis you carried out to reach the conclusions in your *Nature* paper. This is called the Concern document. We established that these requests seemed reasonable and relevant, and therefore requested you on 02/05/2023 to reply to them. You provided us with a formal reply and explanation on 29/05/2023 (the Reply), which we duly forwarded on to the authors of the concern document.
>
> The same members of the scientific community eventually contacted us again, arguing that your reply failed to satisfactorily address the majority of their questions (see revised Concern), and that without proper resolution, their outstanding concerns undermined some of the analysis presented in your work.

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In light of this, as explained by email, we started a post-publication peer-review on 25/07/2023 in order to help us conclude the appropriateness and relevance of these points. Following our policy available at https://www.nature.com/nature-portfolio/editorial-policies/correction-and-retraction-policy, we are committed to investigate any issues with the integrity of our published papers, but we are also keen to ensure that our authors would be asked to provide data and details only in case of scientifically meaningful criticisms. The objective of this first round of post-publication peer-review is to establish if the points raised in the Concern document are found to be important for the integrity of the conclusions in the published article and if they remain outstanding following your explanations.

On 29/06/2023 we requested you to revise your reply in response to the revised Concern, so that this could be shared with our reviewers, but this has not been forthcoming.

We have provided four peer-reviewers with three documents: the Concern, the Reply and the revised Concern. Their reports are appended below.

As you can see from the reports, the reviewers support the criticisms raised by the complainants in the (revised) Concern and do not find the rebuttal to these issues in your original Reply convincing. Hence, we are forced to conclude that the criticisms in the Concern are reasonable, relevant and mostly unaddressed.

In light of the comments of our experts, the details and data required to respond to the points raised in the concern should be easily available or obtainable if the analyses reported in the Lu-H-N *Nature* paper have been carried out rigorously. Therefore, if we are unable to reach a satisfactory resolution to these issues in a timely fashion we will be forced to doubt the veracity of conclusions of your Lu-H-N *Nature* and would have to alert our readers accordingly. That could amount to retracting your manuscript.

We therefore give you one last opportunity to fully collaborate with us in this post-publication peer review process, and require from you the following:

- a revised Reply that responds fully to the points raised in the revised Concern; you should also supply a point-by-point reply to the issues raised by the referees. We ask that you send us this response within 2 weeks.
- provision of all the data requested by the complainants and reviewers, including the raw .dat files for ED figure 14a that we requested from you some time ago but have yet to receive. Again, we ask that you send us these materials within 2 weeks.

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In the meantime, due to these developments, we have decided to issue an Editor's Note to inform our readers about the current situation. The text will be the following:
"Readers are alerted that the reliability of data presented in this manuscript is currently in question. Appropriate editorial action will be taken once this matter is resolved."
Please note that authors' approval/agreement is not needed for the publication of an Editor's Note.

Do not hesitate to contact me should you wish to discuss any procedural points or seek clarifications.

Best regards,

Tobias

Dr. Tobias Roedel

Senior Editor, *Nature*

Nature Portfolio

ORCID iD: https://orcid.org/0000-0002-4032-0741

Referee reports:

Referee #1:

I have examined three documents:
- "Issues related to Nature volume 615, 244 (2023)" dated May 2, 2023 by anonymous authors. ("Issues")
- "Ranga P. Dias' and Ashkan Salamat's response to anonymous "Issues related to Nature volume 615, 244 (2023)" dated May 2, 2023" ("Rebuttal")
- "Response to author's rebuttal concerning issues in Nature 615, 244 (2023)" dated June 26, 2023 by anonymous authors. ("Response")

In my opinion, Profs. Dias and Salamat in their "Rebuttal" did not provide satisfactory response to several issues in the "Issues" document. The anonymous authors presented a detailed analysis of the "Rebuttal" in their later "Response" document and summarized four key issues that the authors of Nature 615, 244 (2023) did not address to date.
I found all four issues listed in the "Response" document important for credibility of the

results published in Nature 615, 244 (2023). Moreover, three out of four issues do not require any additional experimental work. Only the existing lab-notes and computer files should be examined. I fail to understand why the authors of the Nature 615, 244 (2023) publication are not willing or able to provide clear and timely responses. Without such responses the credibility of the published results are in question.

I would like to add few details.
- On June 9, 2023 a preprint (arXiv:2306.06301) from R. Hemley and collaborators was submitted to arXiv.org. In this preprint resistance measurements on samples "synthesized by the University of Rochester group and prepared for electrical resistance measurements in diamond anvil cells" were performed, and sharp drop of resistance has been confirmed. Whereas the measurements indeed are performed in another lab, the results do not address the issue 2, since exactly the same electronics was used. So, IF the vanishing gain of the pre-amplifier cases an artifact, these independent measurements could potentially suffer the same problem.
- To check the the background subtraction for Fig. ED15 myself, I have downloaded the data from Zenodo and used a polynomial fit to the data below 220 K as the fit is implemented in Origin 9.0 I obtained the fitting parameters very close to those in Table 1 in "Response" except that the exponents in b parameter were 1-^-5. not 10^-8 as in the table 1. I assume the Table has a typo. These background fits resulted in broad humps between ~100 K and ~200 K and maxima at T ~ 290 K in \Delta R, similar to those shown in Fig. 3b of the "Issues".

Referee #2:

I examined the arguments presented in the “Issues related to Nature volume 615, 244 (2023)” (or, equivalently, “Concern by anonymous complainants”), as well as the arguments of R. Dias and A. Salamat in support of their paper Nature volume 615, 244 (2023) on superconductivity in the “LuNH” compound. The following four questions are the most important ones in the analysis of the above-mentioned documents:

1. What was subtracted from the resistance in Figs. 2, ED12, and ED13a?
2. Have the authors confirmed vanishing resistance using more than one type of instrumentation?
3. For the 10 kbar data in the paper’s Fig. 2, do the point numbers represent the order in which the data points were acquired?
4. What is the correct description of the background that the authors have used to produce the new version of Fig. ED15?

My position on these four issues is as follows:

1. Background subtraction performed using the programmed SR860 lock-in amplifier function or using digital data processing packages is absolutely unacceptable given the level of responsibility that the authors bear. R. Dias and A. Salamat take full responsibility for the use of certain signal filters (RC or band-pass). As a result of these actions, the reliability of the presented raw data was in doubt due to distortion of the noise pattern at low temperatures.

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2. I disagree that the authors of Nature volume 615, 244 (2023) confirmed the disappearance of electrical resistance in their sample. As indicated by R. Dias, A. Salamat et al. point out that they used the auto offset function of the SR860 to obtain a "zero" resistance. More importantly, their sample does not demonstrate the displacement of the superconducting transition in a magnetic field because it is simply not superconducting, maintaining a finite electrical resistance (see Fig. ED15).

3. R. Dias and A. Salamat's response does not provide a clear and unambiguous explanation of the reason for the appearance of these features in the structure of R(T) data. Under these conditions, additional experiments with low temperature scan rate should be performed. Authors of Nature volume 615, 244 (2023) did not perform any additional experiments to clarify this issue.

4. R. Dias and A. Salamat admit that they made mistakes in Fig. ED 15. But, in my opinion, the key fact here is the recognition of the inadmissibility of subtracting any background for a non-superconducting sample with finite electrical resistance. The authors' attempts to extract the upper critical magnetic field from the data of Fig. ED 15 are incorrect because of the unknown contribution and behavior of the sample magnetoresistance.

Thus, I support the position of the anonymous authors of "Issues related to Nature volume 615, 244 (2023)". I agree that R. Dias, A. Salamat and co-authors have directly or indirectly manipulated electrical resistance measurement data using instrument functions or through numerical data processing programs. These manipulations are unacceptable for publications in the Nature.

Considering the arguments presented in the "Issues related to Nature volume 615, 244 (2023)", as well as the irreproducibility of the results of Nature vol. 615, 244 (2023), I strongly recommend that the article by R. Dias and A. Salamat be retracted.

Referee #3:

see attachment

Referee #4:

see attachment

Von: Tobias Roedel
Gesendet: Montag, 31. Juli 2023 17:49
An: Ranga Dias <rangadiaz@gmail.com>; ASHKAN SALAMAT <ash@unearthlymaterials.com>; keith@unearthlymaterials.com; sachithd83@gmail.com; smunasin@ur.rochester.edu; nkhalvas@u.rochester.edu;

ddurkee@ur.rochester.edu; hwadhura@ur.rochester.edu; rmcbrid5@ur.rochester.edu; esnider3@ur.rochester.edu; ndasenbr@ur.rochester.edu
Cc: Karl Ziemelis <Karl.Ziemelis@nature.com>; Federico Levi <Federico.Levi@nature.com>
Betreff: Post-publication peer review process on Nature 615, 244–250 (2023)

Dear all

The purpose of this email is to inform you that the editors of Nature initiated a post-publication peer review process on Nature 615, 244–250 (2023) 'Evidence of near-ambient superconductivity in a N-doped lutetium hydride', which you coauthored.

Summary of current situation:

We received a Concern summarizing the main issues of your Nature paper, as perceived by researchers who want to remain anonymous. Ranga Dias and Ashkan Salamat sent us a Reply to this Concern and we opted for an additional round of revision between complainants and Nature authors before sending the exchange to referees. We received the revised Concern a few weeks ago and in absence of a revised Reply on the agreed upon deadline, we sent the exchange to 4 referees last week. I attached the documents that the referees received to this email.

For more details, please refer to Ranga Dias and Ashkan Salamat with whom we exchanged several emails on this topic.

Best regards

Tobias

Dr. Tobias Roedel

Senior Editor, *Nature*

Nature Portfolio

Heidelberger Platz 3, 14197 Berlin, GERMANY
T: +49 30 827 875 476

E: tobias.roedel@nature.com
W: www.nature.com
ORCID iD: https://orcid.org/0000-0002-4032-0741

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Chairman of the Supervisory Board: Dr. Stefan von Holtzbrinck

--

Ranga P. Dias

School of Engineering and Applied Sciences and
Department of Physics and Astronomy
220 Hopeman Building
University of Rochester

Rochester, NY 14627
Cell:(509) 270 2178Work:(585) 276 4112

Email: rdias@rochester.edu

Website: http://labsites.rochester.edu/dias/

YSCEF DOC. NO. 11 RECEIVED NYSCEF: 02/14/202

[EXT] Draft Letter for Review (Confidential)

Thornton, Leslie <Leslie.Thornton@ropesgray.com>

Wed 9/6/2023 3:16 PM

To:Dissanayake, Sachith <sachith.dissanayake@rochester.edu>;Wadhurawa Mudiy, Hiranya <hwadhura@ur.rochester.edu>;McBride, Raymond <rmcbrid5@UR.Rochester.edu>;Durkee, Dylan <ddurkee@UR.Rochester.edu>;nathandasenbrockgammon@gmail.com <nathandasenbrockgammon@gmail.com>;elliotmsnider@gmail.com <elliotmsnider@gmail.com>
Cc:Dewhurst, Stephen <Stephen_Dewhurst@URMC.Rochester.edu>;Heinzelman, Wendi <wendi.heinzelman@rochester.edu>

1 attachments (41 KB)

Active_138443597_6_Retraction Letter, Nature 2023 (Draft 2023-09-06, Confidential).DOCX;

Confidential

All:

Attached please find a draft letter to *Nature* for your review. Note that there are comments in the margin for your review/consideration. Please read the letter carefully to ensure the accuracy of all statements (including those in footnotes), and make any edits in track changes.

As a reminder, for now, please keep the draft letter within the group on this trail. Once final, you can circulate to other co-authors you believe may want to sign-on before the letter is sent to *Nature* (if any).

Tomorrow (Thursday) Steve is scheduled to connect with *Nature* editors to give them a general heads-up about the letter. We are aware that Ranga has already responded to *Nature*'s latest reach-out.

Let us know if any questions or if helpful to discuss after you have reviewed.

Best,
Leslie, for Rochester

Leslie A. Thornton, Ph.D., J.D.
ROPES & GRAY LLP
T(LA) +1 310 975 3271 | T(SF) +1 415 315 1274
Leslie.Thornton@ropesgray.com
www.ropesgray.com

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San Francisco, CA 94111-4006

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From: Thornton, Leslie <Leslie.Thornton@ropesgray.com>
Sent: Tuesday, September 05, 2023 12:19 PM

YSCEF DOC. NO. 11 RECEIVED NYSCEF: 02/14/2

To: Dissanayake, Sachith <sachith.dissanayake@rochester.edu>; Dewhurst, Stephen <Stephen_Dewhurst@URMC.Rochester.edu>; Heinzelman, Wendi <wendi.heinzelman@rochester.edu>
Cc: Wadhurawa Mudiy, Hiranya <hwadhura@ur.rochester.edu>; McBride, Raymond <rmcbrid5@UR.Rochester.edu>; Durkee, Dylan <ddurkee@UR.Rochester.edu>; nathandasenbrockgammon@gmail.com; elliotmsnider@gmail.com
Subject: RE: [EXT] RE: RM Nature material

Hi All:

The draft letter should be ready for your review by tomorrow (Wednesday). The intent remains for it to go out this week.

Steve has not yet chatted with Tobias given the holiday weekend, but that will happen before the letter is sent.

We understand that the group is anxious to respond—rest assured that things are moving along steadily in the background.

Circle back soon,
Leslie

Leslie A. Thornton, Ph.D., J.D.
ROPES & GRAY LLP
T(LA) +1 310 975 3271 | T(SF) +1 415 315 1274
Leslie.Thornton@ropesgray.com
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Los Angeles, CA 90067

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San Francisco, CA 94111-4006

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From: Dissanayake, Sachith <sachith.dissanayake@rochester.edu>
Sent: Tuesday, September 05, 2023 12:15 PM
To: Thornton, Leslie <Leslie.Thornton@ropesgray.com>; Dewhurst, Stephen <Stephen_Dewhurst@URMC.Rochester.edu>; Heinzelman, Wendi <wendi.heinzelman@rochester.edu>
Cc: Wadhurawa Mudiy, Hiranya <hwadhura@ur.rochester.edu>; McBride, Raymond <rmcbrid5@UR.Rochester.edu>; Durkee, Dylan <ddurkee@UR.Rochester.edu>; nathandasenbrockgammon@gmail.com; elliotmsnider@gmail.com
Subject: Re: [EXT] RE: RM Nature material

Dear Steve and Leslie,

We are wondering whether there are any updates about the letter.

Also, we wanted to check with you whether Steve sent the email to Nature.

Thank you.

Best Regards,
Sachith

Get Outlook for Android

From: Thornton, Leslie <Leslie.Thornton@ropesgray.com>
Sent: Friday, September 1, 2023 12:36:16 PM
To: Dissanayake, Sachith <sachith.dissanayake@rochester.edu>; Dewhurst, Stephen <Stephen_Dewhurst@URMC.Rochester.edu>; Heinzelman, Wendi <wendi.heinzelman@rochester.edu>
Cc: Wadhurawa Mudiy, Hiranya <hwadhura@ur.rochester.edu>; McBride, Raymond <rmcbrid5@UR.Rochester.edu>; Durkee, Dylan <ddurkee@UR.Rochester.edu>; nathandasenbrockgammon@gmail.com <nathandasenbrockgammon@gmail.com>; elliotmsnider@gmail.com <elliotmsnider@gmail.com>
Subject: [EXT] RE: RM Nature material

Thank you, all. We will take a look, likely over the weekend, and then circle back with the group.

Best,
Leslie

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From: Dissanayake, Sachith <sachith.dissanayake@rochester.edu>
Sent: Friday, September 01, 2023 8:44 AM
To: Thornton, Leslie <Leslie.Thornton@ropesgray.com>; Dewhurst, Stephen <Stephen_Dewhurst@URMC.Rochester.edu>; Heinzelman, Wendi <wendi.heinzelman@rochester.edu>
Cc: Wadhurawa Mudiy, Hiranya <hwadhura@ur.rochester.edu>; McBride, Raymond <rmcbrid5@UR.Rochester.edu>; Durkee, Dylan <ddurkee@UR.Rochester.edu>; nathandasenbrockgammon@gmail.com; elliotmsnider@gmail.com
Subject: Re: RM Nature material

Dear Leslie, Steve, Wendi,

Just wanted to let you know we also uploaded folders for each concern with data/material. Only one remaining to upload and Elliot will upload that also soon.

Thank you.

Best Regards,
Sachith

From: Dissanayake, Sachith <sachith.dissanayake@rochester.edu>
Sent: Thursday, August 31, 2023 9:05 PM
To: Thornton, Leslie <Leslie.Thornton@ropesgray.com>; Dewhurst, Stephen <Stephen_Dewhurst@URMC.Rochester.edu>; Heinzelman, Wendi <wendi.heinzelman@rochester.edu>
Cc: Wadhurawa Mudiy, Hiranya <hwadhura@ur.rochester.edu>; McBride, Raymond <rmcbrid5@UR.Rochester.edu>; Durkee, Dylan <ddurkee@UR.Rochester.edu>; nathandasenbrockgammon@gmail.com <nathandasenbrockgammon@gmail.com>; elliotmsnider@gmail.com <elliotmsnider@gmail.com>
Subject: RM Nature material

Dear Steve, Wendi and Leslie,

I just want to let you know that we uploaded the PPT with details about concerns, the draft document with bullet points for the letter, and another letter students prepared weeks ago to the Box folder.

Hoping to hear your comments about these and looking forward to receiving the draft letter.

Thank you.

Best Regards,
Sachith

Draft 2023-09-06

CONFIDENTIAL

September [__], 2023

Tobias Rödel, Ph.D.
Senior Editor, *Nature*
Nature Portfolio
Heidelberger Platz 3
14197 Berlin, Germany

VIA ELECTRONIC DELIVERY

RE: N. Dasenbrock-Gammon, E. Snider, R. McBride, H. Pasan, D. Durkee, N. Khalvashi-Sutter, S. Munasinghe, S.E. Dissanayake, K.V. Lawler, A. Salamat & R.P. Dias, *Evidence of near-ambient superconductivity in a N-doped lutetium hydride*, 615 Nature 244–250 (2023) (the "**LuH Paper**")

Dear Dr. Rödel:

We, the undersigned co-authors on the above-noted LuH Paper, are writing to request and recommend that this publication be retracted due to certain specific concerns. Each of these concerns is summarized in brief below, and they include a lack of transparency, a lack of scientific diligence in data collection, and apparent instances of data manipulation on the part of Dr. Ranga Dias. [Please note that Dr. Dias is not copied on this letter due to the fundamental ethical concerns regarding his conduct that are addressed herein, and we want to ensure we can speak freely without fear of retaliation.]

As a threshold matter, please note that, in hindsight, we regret that we did not raise contemporaneously the concerns outlined in this letter. However, because many of us were members of Dr. Dias's lab until very recently[1]—during which time we were both academically and financially dependent upon Dr. Dias—we did not feel that we were able to speak freely.

As background, except for preparation of the initial submission, Dr. Dias failed to include all co-authors in any peer review process, both before publication and during post-publication review, and specifically prohibited graduate student co-authors from participating in any peer review process. In fact, not until **July 6, 2023** did [most of] the undersigned co-authors (both students and collaborators) first learn that the LuH Paper was under post-publication review. On that date, Dr. Dias informed us that *Nature* had concerns about the LuH Paper, and he asked for our opinion as to whether we, collectively, should respond to *Nature*'s concerns, and if so, how we should respond. During that meeting, many of us expressly requested to see *Nature*'s written concerns, which to that point, Dr. Dias had not provided to us. Later that day, Dr. Dias sent a

[1] Nathan Dasenbrock-Gammon, Elliot Snider, Raymond McBride, Hiranya Pasan, Dylan Durkee, and [Sasanka Munasinghe] were graduate students in Dr. Dias's lab, and Sachith Dissanayake, [who was recruited by Dr. Dias], was an assistant professor (research) in Dr. Dias's lab. [These students and faculty all received funding from Dr. Dias's sponsored awards.]

Commented [1]: To Co-Authors: Signed co-authors t consider including this language. This departs from prior internal discussion, but this is an appropriate stance if co-authors are not comfortable Cc-ing Ranga when sending t to Nature.

Commented [2]: To Co-Authors: Please ensure the accuracy of this footnote.

Commented [3]: To Co-Authors: Please ensure this statement is accurate. Was this expressly stated to you or only implied?

Commented [4]: To Co-Authors: If Ash and Keith sig on to this letter, this paragraph might not apply to them, hence "most of."

Commented [5]: To Co-Authors: Were all signed co-authors present during this discussion or only some? If o some, please clarify who was present.

Slack message containing an **undated** Word document that he represented as having been sent to him by *Nature*. However, upon receiving your email of July 31, 2023, we learned that (a) the original document from *Nature* was actually dated **May 2, 2023**, almost two months before Dr. Dias had informed us of *Nature*'s concerns (again, the document provided by Dr. Dias purportedly from *Nature* was undated); and (b) in late May, well before Dr. Dias notified us of *Nature*'s concerns and well before he sought our advice on a response, Dr. Dias had already responded to *Nature* .

In addition, during preparation of the LuH Paper in 2022 and prior to submission to *Nature*, many concerns, listed below, were raised with Dr. Dias by one or more of the undersigned co-authors; those concerns included clearly misleading and/or inaccurate representations in the manuscript. While Dr. Dias did make some changes in response to our comments, our concerns largely were dismissed by Dr. Dias, and some of us were instructed by Dr. Dias not to probe further into the issues raised and/or not to "worry about" such concerns. In April 2022, all graduate student co-authors approached Dr. Dias to express our concerns about the manuscript, at which point Dr. Dias provided two options: (1) we should remove our names from the paper; or (2) we should allow the paper in its then-current form to proceed for review and possible publication. At the time, neither choice seemed tenable given that Dr. Dias was in control of our personal academic and financial circumstances, as our mentor and supervisor.

Based on the above, we believe that Dr. Dias has not acted in good faith in regard to the preparation and submission of the manuscript and in regard to the follow-up, more recent correspondence he has had with *Nature* editors.

Specifically, our concerns include the following:

1. **Commercial Samples**—With the exception of Extended Data Figure 13a, all samples used for analyses underlying the LuH Paper were commercially purchased samples. The Methods section states that "[w]e also used commercially available LuH_2/LuH_3," which could be read to imply that only a small number of commercially purchased samples were used and that most samples were synthesized at the University of Rochester. In fact, the vast majority of samples were commercially purchased. Also, commercially purchased samples were sold as LuH_3 and only later found to have nitrogen impurities. No treatment procedures were carried out on the commercially purchased samples used to produce most of the data within the LuH Paper.

2. **Resistance Measurement, Figure 2a**—The raw data provided for the three electrical resistance measurement curves in Figure 2a do not match the original raw data, indicating data manipulation that was not discussed with any co-authors and was not disclosed in the LuH Paper. When observed over the entire temperature range, some of the apparent transitions are questionable.

3. **Lack of Pressure Dependence, Figure 4c**—Figure 4c is based on data that were not accurately presented. The apparent transition was observed over several repeated experiments on the same sample and did not show any pressure dependence. The lack of pressure dependence suggests that any apparent transition was an artifact of the

measurement caused by temperature-induced pressure changes during the experiment. Yet this flawed measurement was included in the LuH Paper.

4. **Resistance Measurement, Extended Data Figure 13a**—The resistance measurements shown in Extended Data Figure 13a do not have all necessary information disclosed. Specifically, the measurements were performed under a 6.5 Tesla field. When this was brought to Dr. Dias's attention for inclusion in the manuscript, Dr. Dias said, "the field does not matter and we do not have to disclose it." Additional anomalies can be identified when the raw data are plotted over the entire temperature range.

5. **PPMS VMS Data, Figure 3 and Extended Data Figure 14a**—Dr. Dias manipulated PPMS VSM data, as displayed in Figure 3 and Extended Data Figure 14a, by subtracting two different data sets measured for ZFC, FC curves and also for M vs. H measurements. This is not disclosed in the LuH Paper. Dr. Dissanayake objected to this calculation and lack of disclosure regarding the same, showing Dr. Dias (including via a PowerPoint presentation) that the method used for analysis was (and is) not valid. However. Dr. Dias dismissed these concerns and submitted his version of the analysis, without any disclosure in the LuH Paper regarding his analysis method. The data presented as "measured data" are actually two subtracted data sets, using a method that inverts a ferromagnetic signal into one that resembles a diamagnetic signal. In response to Dr. Dias's decision to press forward with use of these calculations, Dr. Dissanayake asked to be removed as a stated contributor to the PPMS VMS data, but Dr. Dias did not honor this request; instead, Dr. Dias edited the "Author contributions" section to state that only Dr. Dias had carried out the associated data analyses.

Based on the above, we respectfully request and recommend that Nature issue a retraction of the LuH Paper.

If you have any questions, require further information, or would like to discuss these concerns, please contact [co-author name] at [email/phone]. We are glad to provide supplemental materials supporting these concerns and/or to discuss our concerns via teleconference or Zoom session, as helpful to you and your colleagues at *Nature*.

[Finally, in the spirit of transparency, we have copied on this email communication all co-authors other than Dr. Dias to allow any of them an opportunity to respond with their own views on these issues.]

Sincerely,

Nathan Dasenbrock-Gammon, Ph.D.,
submitted on behalf of myself and my co-authors listed below:

Elliot Snider, Ph.D.

Commented [6]: To Co-Authors: Is this a precise quo Do any of the co-authors have this exchange in writing? only based on notes or memory, but not something like er exchange or e-message, quotations should be removed.

Commented [7]: To Co-Authors: As done in this paragraph, it would be helpful if you would please note w specifically among you voiced concerns about each of the above issues.

Commented [8]: To Sachith: Did you ask to be remov as a stated contributor of this analysis, or removed as a co author more generally? If the latter, the selected languag needs to be updated.

Commented [9]: To Co-Authors: Suggest nominating one co-author to help coordinate correspondence.

Commented [10]: To Co-Authors: Defer to the co-authors as to whether to cc Ranga and others. This should align with whatever you all decide as to the bracketed language at the top of the letter.

Commented [11]: To Co-Authors:

- Suggest having one person sign on behalf of the rest of t group.

- Names are listed in paper order.

- Please ensure that all persons' titles (*e.g.*, candidate or student) are reflected accurately.

- Co-authors who have not signed on to this letter are included in "cc" below, but only if you decide to copy the folks per above comments. As of now, Ranga is not listed the cc.

Raymond McBride, Ph.D [Candidate/Student]
Hiranya Pasan, Ph.D. [Candidate/Student]
Dylan Durkee, Ph.D. [Candidate/Student]
[Sasanka Munasinghe, Ph.D. Student]
Sachith E. Dissanayake, Ph.D.
[Keith V. Lawler, Ph.D.]
[Ashkan Salamat, Ph.D.]

[cc: Nugzari Khalvashi-Sutter]